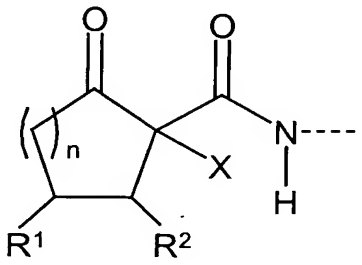
**WHAT IS CLAIMED IS:**

1. Hydrophilic polyurethane (PU) prepolymers comprising a polymer backbone with structural units of formula (I),



(I)

in which

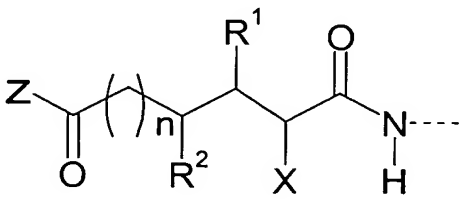
$R^1$ and $R^2$ independently of one another represent the radicals H, $C_1$-$C_{20}$-(cyclo)alkyl, $C_6$-$C_{24}$-aryl, $C_1$-$C_{20}$-(cyclo)alkyl ester or amide, $C_6$-$C_{24}$-aryl ester or amide, mixed aliphatic/aromatic radicals having 1 to 24 carbon atoms, which may also be part of a 4- to 8-membered ring, and

X is an electron-withdrawing group,

n is an integer from 0 to 5,

and also having structural units of polymeric polyols with a number average molecular weight range from 400 to 6000, the polymer backbone possessing ionic or potentially ionic and/or nonionically hydrophilizing groups.

2. Aqueous dispersions of polyurethane-polyurea polymers comprising the general structural unit (II),



in which

$R^1$ and $R^2$ independently of one another represent the radicals H,

$C_1$-$C_{20}$-(cyclo)alkyl, $C_6$-$C_{24}$-aryl, $C_1$-$C_{20}$-(cyclo)alkyl ester or amide, $C_6$-$C_{24}$-aryl ester or amide, mixed

aliphatic/aromatic radicals having 1 to 24 carbon atoms, which may also be part of a 4- to 8-membered ring,

X is an electron-withdrawing group,

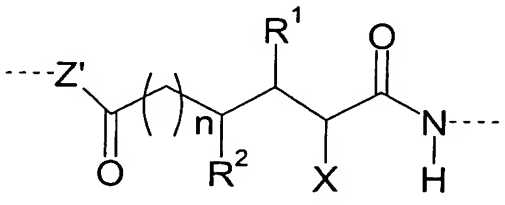
Z represents OH, $OR^3$ or $NR^4R^5$, with

$R^3$ is selected from a $C_1$-$C_{20}$-(cyclo)alkyl radical,

$C_2$-$C_{18}$-alkenyl radical, $C_5$-$C_8$-cycloalkenyl radical, $C_2$-$C_{18}$-alkynyl radical, $C_6$-$C_{24}$-aryl radical, $C_1$-$C_{20}$-(cyclo)alkyl ester and amide radical, $C_6$-$C_{24}$-aryl ester and amide radical, and $C_3$-$C_{12}$-heterocycloalkyl radicals, all of which can be unsubstituted or substituted by a group selected from $NO_2$, amino, cyano, carboxyl, ester, keto and aldehyde groups,

$R^4$ and $R^5$ are independently of one another radicals selected from the group consisting of H, $C_1$-$C_{20}$-(cyclo)alkyl, $C_2$-$C_{18}$-alkenyl, $C_5$-$C_8$-cycloalkenyl, $C_2$-$C_{18}$-alkynyl, $C_6$-$C_{24}$-aryl, $C_1$-$C_{20}$-(cyclo)alkyl ester and amide, $C_6$-$C_{24}$-aryl ester and amide, $C_3$-$C_{12}$-heterocyclo-alkyl radicals, all of which may be unsubstituted or substituted by a group selected from $NO_2$, amino, cyano, carboxyl, ester, keto and aldehyde groups, and $R^4$ and $R^5$ together with the nitrogen atom may form a $C_3$-$C_{12}$-cycloalkyl or a $C_3$-$C_{13}$-heterocyclo-alkyl radical containing O, S or N atoms,

and/or the general structural unit (III),




(III)

in which

$R^1$, $R^2$ and X have the aforementioned meaning and

Z' represents a bridging oxygen atom or bridging secondary or tertiary nitrogen atom and

n is an integer from 0 to 5.

3. A process for preparing the polyurethane prepolymers according to Claim 1, characterized in comprising the step of reacting

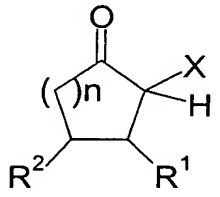
A1) at least one polyisocyanate having aliphatically, cycloaliphatically, araliphatically and/or aromatically attached isocyanate groups with

A2) polymeric polyols of the average molar weight range from 400 to 6000,

A3) optionally one or more polyhydric alcohols having 1 to 4 hydroxyl groups of the molecular weight range up to 400,

A4) at least one ionic and/or potentially ionic and/or nonionic hydrophilic compound having NCO reactive groups,

A5) at least one CH-acidic cyclic ketone of the general formula (IV),




(IV)

in which

X is an electron-withdrawing group,

$R^1$ and $R^2$ independently of one another are selected from the group of radicals consisting of H, $C_1$-$C_{20}$-(cyclo)alkyl, $C_6$-$C_{24}$-aryl, $C_1$-$C_{20}$-(cyclo)alkyl ester and amide, $C_6$-$C_{24}$-aryl ester and amide, mixed aliphatic/aromatic radicals having 1 to 24 carbon atoms, which can also be part of a 4- to 8-membered ring,

n is an integer from 0 to 5, and with

A6) optionally one or more (cyclo)aliphatic monoamines or polyamines or amino alcohols having 1 to 4 amino groups of the molecular weight range up to 400,

in the presence of a catalyst and optionally in the presence of isocyanate-inert organic solvents, the molar ratio of isocyanate groups to isocyanate-reactive groups being from 0.5 to 3.

4. The process according to Claim 3, wherein the polymeric polyols (A2) are polyester-, polyether- or polycarbonate polyols.

5. The process according to Claim 4, wherein the polyether polyols are composed of less than 30 mol% ethylene oxide units.

6. A process for preparing aqueous dispersions of polyurethane-polyurea polymers according to Claim 2 comprising the steps of:

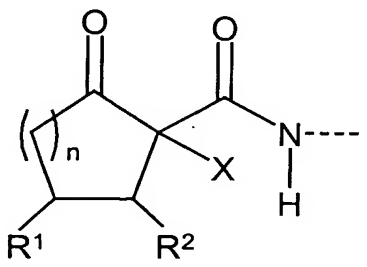
(a) providing an aqueous phase,

(b) providing at least one hydrophilic polyurethane prepolymer according to Claim 1,

(c) partly or fully neutralizing potentially ionic groups, and

(d) conducting a dispersion operation, by transferring the polyurethane prepolymers of b) to the aqueous phase, or vice versa

(e) before, simultaneously or after step (d) chain extending with aminic components (A4) and/or (A6), wherein the polyurethane prepolymers (c) comprise a polymer backbone with structural units of the formula (I)




(I)

in which

$R^1$ and $R^2$ independently of one another represent a radical selected from the group consisting of H, $C_1$-$C_{20}$-(cyclo)alkyl, $C_6$-$C_{24}$-aryl, $C_1$-$C_{20}$-(cyclo)alkyl ester and amide, $C_6$-$C_{24}$-aryl ester and amide, mixed aliphatic/aromatic radicals having 1 to 24 carbon atoms, which may also be part of a 4- to 8-membered ring, and

X is an electron-withdrawing group,

n is an integer from 0 to 5,

and also with structural units of polymeric polyols having a number average molar weight range of from 400 to 6000.

7. A process for producing coating compositions comprising adding the aqueous dispersions of polyurethane-polyurea polymers according to Claim 2 alone or in combination with curing agents and/or polymers soluble, emulsifiable or dispersible in water and in dispersed form to a coating composition.

8. Coating compositions comprising polyurethane-polyurea dispersions according to Claim 2.

9. Substrates coated with the coating compositions comprising polyurethane-polyurea dispersions according to Claim 8.

10. A method of preparing coating materials, sizes or adhesives comprising adding the polyurethane prepolymers of Claim 1 to a composition selected from coating compositions, sizing compositions and adhesive compositions.

11. A method of preparing coating materials, sizes or adhesives comprising adding the polyurethane polyurea dispersions of Claim 2 to a composition selected from coating compositions, sizing compositions and adhesive compositions.